

08-03-05

1756 CFW



Our ref: KON-1707

Client's ref: P4982-001-0001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: N. HIROSE,
et al :

Serial No. : 10/056,577 :
Filed : January 24, 2002 :
For : TONER FOR FORMING:
ELECTROSTATIC :
IMAGE :

Group : 1756

Examiner: C.D. Rodee

Dated : August 2,
2005

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TRANSMITTAL

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S i r:

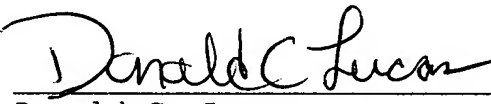
"Express Mail" mailing label No. EV733806853 W
Date of Deposit 08-02-05
I hereby certify that this paper or fee is
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Patents, P.O. Box 1450, Alexandria, VA 22313-1450
Margaret Rogers - August 2, 2005

Further to the above-identified Application, there is
enclosed herewith the fully executed Declaration of Mr.
Yamazaki. As the Examiner will note, the enclosed
Declaration is identical, in all respects, to the
unexecuted copy previously filed with our Response on July
15, 2005.

In view of the foregoing, it is believed that this Application is now in condition for allowance, and such action is respectfully requested. Should any extensions of time or fees be necessary in order to maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit account #02-2275.

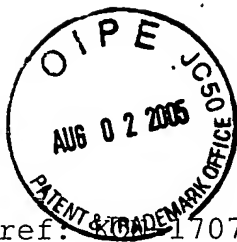
Respectfully submitted,

LUCAS & MERCANTI, LLP

By: 
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DCL/mr

Encl: Executed Declaration of Mr. Hiroshi Yamazaki
executed on July 22, 2005.
Return receipt post-card



Our ref: 1707

Client's ref: P-4982-001-0000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: N. HIROSE et al.: Art Unit : 1756

Serial No. : 10/056,577 :
Examined : January 24, 2002 : Examiner : C. D.
Rodee

Title : TONER FOR FORMING :
ELECTROSTATIC IMAGE :
:

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DECLARATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S i r:

I, Hiroshi Yamazaki, hereby declare and say as follows:

1. I am one of the Inventors of the present invention.

2. I received a Masters Degree in Applied Chemistry from Yokohama National University in March 1979. Since April of 1979, I have been employed by Konica Corporation, the Assignee of the present invention. During my employment at Konica, I have engaged in research and development of electrophotographic materials.
3. I am aware that the present invention has been rejected based on Nozawa (US 6,555,281) and Hashimoto (US 6,610,454). Tests have been performed and are reported herein to demonstrate that the materials of Nozawa and Hashimoto do not inherently contain toner particles less than 5.0% in number having a circle corresponding diameter of from not less than 0.60 to less than 1.00. These tests were performed by myself or under my supervision and control.
4. The toner particles of Example 34 of Nozawa were prepared in accordance with the description of Examples 33-35 in col. 37 of Nozawa. Since Nozawa is silent concerning the type of pulverization device and pneumatic classifier, I type mill IDS-2 was employed as the pulverizer (produced by Nippon Pneumatic Mfg. Co., Ltd.) and Mikroplex 132 MP was employed as the pneumatic classifier (produced by Yaskawa

Electric Manufacturing Co. Ltd.). A coarsely crushed melt-kneaded product was finely pulverized using the I type mill IDS-2 pulverizer under compressed air pressure at 6.0 kg/cm²G at a feed supply rate of 13 kg/hr. After pulverization, classification was performed using the Mikroplex 132 MP classifier under a rotation rate of 12,000 rpm and a guide vane angle of 8°. The prepared toner particles were labeled "Nozawa 1" in the attached Table 1.

5. The toner particles labeled "Inventive 1" in Table 1 were prepared in the same manner as the toner particles of Nozawa 1, except that the guide vane angle was changed to 8.5°.
6. The toner particles of Example 17 of Hashimoto were prepared in accordance with the description in col. 53 of Hashimoto. The prepared toner particles were labeled "Hashimoto 1" in Table 1.
7. The toner particles labeled "Inventive 2" in Table 1 were prepared in the same manner as the toner particles of Hashimoto 1, except that the rotation speed of the TK-type homomixer was changed to 11600 rpm during granulation of the polymerizable monomer composition.

8. The toner particles of Example 29 of Hashimoto were prepared in accordance with the description in col. 62 of Hashimoto. Since Hashimoto is silent concerning the type of pulverization device and pneumatic classifier, I type mill IDS-2 and Mikroplex 132 MP were again employed as the pulverizer and pneumatic classifier. The crushed melt-kneaded product was pulverized using the I type mill IDS-2 pulverizer under compressed air pressure at 6.0 kg/cm²G at a feed supply rate of 13 kg/hr. After pulverization, classification was performed using the Mikroplex 132 MP classifier under a rotation rate of 11,200 rpm and a guide vane angle of 7°. The prepared toner particles were labeled "Hashimoto 2" in the attached Table 1.
9. The toner particles labeled "Inventive 3" in Table 1 were prepared in the same manner as the toner particles of Hashimoto 2, except that the guide vane angle was changed to 7.5°.
10. The toner particles of Nozawa 1, Inventive 1, Hashimoto 1, Inventive 2, Hashimoto 2 and Inventive 3 were evaluated and the results of the evaluations are shown in Table 1. The ratio of toner particles having a diameter of 0.60-1.00 μ m was measured using the analyzing apparatus FPIA-2000

described at page 11, lines 17-22 of the present invention. SF-1 and SF-2 were measured by observing 100 particles using an electron microscope with a 2000x magnification and analyzing the image as described at page 11, lines 3-11 of the present invention. For Nozawa 1 and Inventive 1, size distribution N was measured using the COULTER MULTICIZER having the 100 μ m aperture described in col. 20 of Nozawa.

11. As shown in Table 1, Nozawa 1 prepared in accordance with the teachings of Nozawa had a ratio of toner particles of 5.2%, Hashimoto 1 prepared in accordance with the teachings of Hashimoto had a ratio of toner particles of 5.5%, and Hashimoto 2 prepared in accordance with the teachings of Hashimoto had a ratio of toner particles of 5.1%. Each of these ratios is above the range recited in claim 1 of the present invention.

12. After measurement of the properties illustrated in Table 1, Nozawa 1 and Inventive 1 were mixed with external additives of 1.0% by weight of hydrophobic silica particles (number average primary particle size of 12 nm), 0.15% by weight of hydrophobic titanium oxide particles (number average primary particle size of 20 nm), and 0.8% by weight of hydrophobic titanium oxide particles (number average

primary particle size of 200 nm) using a Henschel mixer. Hashimoto 1, Inventive 2, Hashimoto 2 and Inventive 3 were mixed with the external additives using the Henschel mixer described at page 46 lines 1-7 of the present invention. The obtained toners were respectively labeled Nozawa 1A, Inventive 1A, Hashimoto 1A, Inventive 2A, Hashimoto 2A and Inventive 3A.

13. Nozawa 1A, Inventive 1A, Hashimoto 1A, Inventive 2A, Hashimoto 2A and Inventive 3A were evaluated for image density, fog density and half-toner unevenness in the manner described at page 46, line 11 to page 49, line 7 of the present invention, except that a complimentary color filter was employed in the densitometer. The results of these evaluations are illustrated in Table 2.

14. As shown in Table 2, each of the Inventive toners were superior to the toners prepared in accordance with Nozawa and Hashimoto in terms of image density after 50,000 copies, fog density after 50,000 copies and half tone unevenness after 50,000 copies. For instance, the toner of Inventive 1A had less change in image density after 50,000 copies, fog density after 50,000 copies and half tone unevenness after 50,000 copies compared to the toner of

Nozawa 1A. The superiority of the Inventive toners can also be seen by comparing the toner of Inventive 2A with the toner of Hashimoto 1A, and by comparing the toner of Inventive 3A with the toner of Hashimoto 2A.

15. I believe that the data presented in this Declaration is surprising and unexpected based on the teachings of Nozawa and Hashimoto.

It is declared by undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the U.S. Code; and that such willful false statements may jeopardize the validity of this Application or any patent issuing thereon.

Hiroshi Yamazaki
Hiroshi Yamazaki

Dated: This 22nd day of July, 2005.

Encl: Table 1
Table 2



Table 1

| | N (2-4 μm)% | Ratio of toner particles having a diameter of 0.60-1.00 μm (%) | SF-1 | SF-2 | SF-1/SF-2 |
|-------------|-------------------------|---|------|------|-----------|
| Nozawa 1 | 8.00 | 5.2 | 160 | 136 | 1.18 |
| Inventive 1 | 7.80 | 4.8 | 160 | 135 | 1.19 |
| Hashimoto 1 | n/a | 5.5 | 135 | 111 | 1.22 |
| Inventive 2 | n/a | 4.7 | 137 | 112 | 1.22 |
| Hashimoto 2 | n/a | 5.1 | 158 | 140 | 1.13 |
| Inventive 3 | n/a | 4.6 | 160 | 141 | 1.13 |

Table 2

| | Image Density | | Fog Density | | Half tone Unevenness | |
|--------------|---------------|--------------|-------------|--------------|----------------------|--------------|
| | Initial | After 50,000 | Initial | After 50,000 | Initial | After 50,000 |
| Nozawa 1A | 1.40 | 1.42 | 0.001 | 0.015 | A | C |
| Inventive 1A | 1.40 | 1.41 | 0.001 | 0.004 | A | A |
| Hashimoto 1A | 1.40 | 1.43 | 0.001 | 0.012 | A | C |
| Inventive 2A | 1.40 | 1.41 | 0.001 | 0.003 | A | A |
| Hashimoto 2A | 1.40 | 1.44 | 0.001 | 0.020 | B | D |
| Inventive 3A | 1.40 | 1.40 | 0.001 | 0.004 | B | B |